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Table S1. Characteristic bands in the IR spectra of selected complexes. The values of ν_{asym}(COO), ν_{sym}(COO) and $\Delta\nu$(COO) (in cm^{-1}) are cited as given in the relevant references.

Complex	**ν_{asym}(COO)**	**ν_{sym}(COO)**	**$\Delta\nu$(COO)**	**Ref.**
I Monodentate binding				
[Mn(NAP-O)$_2$(py)$_2$(H$_2$O)$_2$]	1601	1388	213	1
[Co(NAP-O)$_2$(CH$_3$OH)$_4$]	1604	1398	206	2
[Co(NAP-O)$_2$(py)$_2$(H$_2$O)$_2$]	1605	1389	216	2
[Co(NAP-O)$_2$(phen)(CH$_3$OH)$_2$]	1609	1398	211	2
[Co(NAP-O)$_2$(bipy)(CH$_3$OH)$_2$]	1605	1401	204	2
[Ni(NAP-O)$_2$(CH$_3$OH)$_4$]	1604	1391	213	3
[Ni(NAP-O)$_2$(Hpko-N,N′)$_2$]	1604	1392	212	3
[Ni(NAP-O)$_2$(py)$_2$(H$_2$O)$_2$]	1604	1390	204	3
[Cu(NAP-O)$_2$(bipy)]·H$_2$O	1600	1379	221	4
[Cu(NAP-O)$_2$(phen)]·H$_2$O	1608	1377	231	4
[Cu(NAP-O)$_2$(py)$_2$(H$_2$O)]	1595	1389	206	4
[Cu(NAP-O)$_2$(H$_2$O)(4pic)$_2$]	1591	1380	211	5
[Cu(N1A-O)(EDA)$_2$](ClO$_4$)	1598	1381	217	6
[Cu(NAP-O)(L1-6)Cl]	1556-1564	1370-1398	<200	7
[Zn(NAP-O)$_2$(phen)]			215	8
[Zn(NAP-O)$_2$(neoc)]			230	8
[Zn(NAP-O)$_2$(2ampy)$_2$]			216	8
[Zn(NAP-O)$_2$(Himi)$_2$]			196	8
[Zn(NAP-O)$_2$(1,2-dmimid)$_2$]			229	8
[Ag(NAP-O)(PPh$_3$)$_3$]·H$_2$O	1573	1393	180	9
II Bidentate chelating				
[Ni(NAP-O,O′)$_2$(bipyam)]	1605	1421	184	3
[Ag(NAP-O,O′)(tptp)$_2$]	1560	1393	167	9
[(n-Bu)$_2$Sn(NAP-O,O′)$_2$]	1584	1389	195	10
III Monodentate binding + Bidentate chelating				
[Mn(NAP-O)(NAP-O,O′) (phen)(H$_2$O)]	1604	1426, 1394	178, 201	1
[Ni(NAP-O)(NAP-O,O′)(bipy)(CH$_3$OH)]	1606	1420, 1401	186, 205	3
[Ni(NAP-O)(NAP-O,O′)(phen)(H$_2$O)]	1606	1422, 1400	186, 206	3

IV bridging				
$[Mn(\mu\text{-NAP-O,O'})_2(CH_3OH)]_n$	1566	1393	173	11
$[Cu_2(\mu\text{-NAP-O,O'})_4(H_2O)_2]$	1593	1424	169	4
$[Cu_2(\mu\text{-NAP-O,O'})_4(3pic)_2]$	1604	1398	206	5
$[Mn_6(\mu_3\text{-NAP-O,O,O'})(\mu_2\text{-Hsal-O,O'})(\mu_2\text{-shi-N,O})_5(py)_6]$	1570	1390	180	11
$[Ru_2(\mu_2\text{-N1A-O,O'})_4(THF)_2](PF_6)$.THF	1598	1411	187	12
$[Ru_2(\mu_2\text{-N2A-O,O'})_4(H_2O)_2](PF_6)$.THF	1601	1409	192	12
$[Ag_4(\mu\text{-NAP-O,O'})_4(2pic)_2]_n$	1531	1379	152	13
$[(Me_3Sn)_4(\mu_2\text{-NAP-O,O'})_4]$	1603	1388	215	14
$[(Bu_3Sn)_4(\mu_2\text{-NAP-O,O'})_4]$	1644	1439	205	14
$[(Ph_3Sn)(\mu_2\text{-NAP-O,O'})]_n$	1632	1425	207	14
$[Y_2(\mu_2\text{-N1A-O,O,O'})_2(\mu_2\text{-N1A-O,O'})_4(phen)_2]$.DMF	1563	1425	138	15
$[Pr_2(\mu_2\text{-N1A-O,O,O'})_2(\mu_2\text{-N1A-O,O'})_4(phen)_2]$.DMF	1566	1380	186	15
$[Nd_2(\mu_2\text{-N1A-O,O,O'})_2(\mu_2\text{-N1A-O,O'})_4(phen)_2]$	1545	1401	144	16
$[Sm_2(\mu_2\text{-N1A-O,O,O'})_2(\mu_2\text{-N1A-O,O'})_4(phen)_2]$.DMF	1545	1425	120	15
$[Eu_2(\mu_2\text{-N1A-O,O,O'})_2(\mu_2\text{-N1A-O,O'})_4(phen)_2]$.DMF	1556	1422	134	15
$[Gd_2(\mu_2\text{-N1A-O,O,O'})_2(\mu_2\text{-N1A-O,O'})_4(phen)_2]$.DMF	1563	1425	138	15
$[Tb_2(\mu_2\text{-N1A-O,O,O'})_2(\mu_2\text{-N1A-O,O'})_4(phen)_2]$.DMF	1562	1422	140	15
$[Yb_2(\mu_2\text{-N1A-O,O,O'})_2(\mu_2\text{-N1A-O,O'})_4(phen)_2]$.DMF	1578	1425	153	15

1,2-dmimid = 1,2-dimethylimidazole; 2pic = 2-picoline; 4pic = 4-picoline; bipy = 2,2′-bipyridine; bipyam = 2,2′-bipyridylamine; DMF = N,N-dimethylformamide; EDA = N,N-dimethylethane-1,2-diamine; Himi = imidazole; Hpko = di(2-pyridyl)ketone oxime; H_2sal = salicylic acid; H_3shi = salicylhydroxamic acid; neoc = neocuproine; phen = 1,10-phenantholine; py = pyridine; THF = tetrahydrofuran; tptp = tri(p-tolyl)phosphine.

Table S2. Anti-bacterial activity data (inhibition zone (IZ), in mm) of reported complexes for diverse concentrations.

Compound	**C**	***BS***	***ML***	***SA***	***EC***	***KP***	***PA***	***PM***	**Reference**
Naproxen	8.5 mM	NT	NA	NA	NA	NA	NA	NA	8
$[Zn_2(NAP)_4]$	8.5 mM	NT	NA	NA	10.0±1.0	10.0±1.0	NA	8.0±0.6	8
$[Zn(NAP)_2(phen)]$	8.5 mM	NT	16.0±2.1	16.0±1.1	20.0±2.1	20.0±2.5	19.0±1.1	21.0±1.0	8
$[Zn(NAP)_2(neoc)]$	8.5 mM	NT	20.0±1.5	20.0±1.0	7.7±1.2	11.0±1.2	NA	NA	8
$[Zn(NAP)_2(2ampy)_2]$	8.5 mM	NT	12.3±1.2	12.3±0.6	NA	NA	NA	NA	8
[Zn(NAP)2(Himi)2]	8.5 mM	NT	NA	NA	9.7±0.6	9.7±0.6	NA	NA	8
$[Zn(NAP)_2(1,2\text{-}dmimid)_2]$	8.5 mM	NT	8.7±0.6	8.3±1.2	NA	NA	NA	NA	8
Erythromycin	8.5 mM	NT	39.0	43.0	18.0	21.0	NA	17.0	8
Gentamycin	8.5 mM	NT	33.0	27.0	28.0	32.0	23.0	28.0	8
HN1A	4 mg/mL	25	NT	19.8	16.0	NT	NT	NT	17
	1.04 mM	8.0-10.0	NT	8.2-9.2	7.0-12.0	NT	NT	NT	15, 18
	2.60 mM	11.0	NT	10.0	14.0	NT	NT	NT	15, 18
	4.16 mM	10.8-14.0	NT	10.8-15.0	16.0-18.0	NT	NT	NT	15, 18
$[Co(N1A)_2(H_2O)_2]_n$	4 mg/mL	23.3	NT	15.5	21.5	NT	NT	NT	17
$[Gd_2(N1A)_6(phen)_2]$	1.04 mM	16.0	NT	11.5	11.0	NT	NT	NT	18
	2.60 mM	17.5	NT	18.0	16.2	NT	NT	NT	18
	4.16 mM	19.0	NT	19.0	19.0	NT	NT	NT	18
$[Tb_2(N1A)_6(phen)_2]$.DMF	1.04 mM	17.1	NT	15.5	14.3	NT	NT	NT	18
	2.60 mM	20.8	NT	27.5	24.0	NT	NT	NT	18
	4.16 mM	22.5	NT	26.4	22.8	NT	NT	NT	18
$[Y_2(N1A)_6(phen)_2]\cdot 2DMF$	1.04 mM	9.0	NT	9.2	17.0	NT	NT	NT	15
	2.60 mM	15.0	NT	19.1	18.1	NT	NT	NT	15
	4.16 mM	16.3	NT	18.2	16.5	NT	NT	NT	15

$[Eu_2(N1A)_6(phen)_2]\cdot 2DMF$	1.04 mM	11.0	NT	10.2	13.1	NT	NT	NT	15
	2.60 mM	12.0	NT	16.1	15.0	NT	NT	NT	15
	4.16 mM	12.0	NT	14.5	15.0	NT	NT	NT	15
$[Sm_2(N1A)_6(phen)_2]\cdot 2DMF$	1.04 mM	14.1	NT	16.0	14.0	NT	NT	NT	15
	2.60 mM	15.0	NT	18.1	18.5	NT	NT	NT	15
	4.16 mM	18.9	NT	23.0	19.0	NT	NT	NT	15
$[Tb_2(N1A)_6(phen)_2]\cdot 2DMF$	1.04 mM	15.1	NT	15.5	14.3	NT	NT	NT	15
	2.60 mM	20.8	NT	27.5	24.0	NT	NT	NT	15
	4.16 mM	22.5	NT	26.4	22.8	NT	NT	NT	15
$[Gd_2(N1A)_6(phen)_2]\cdot 2DMF$	1.04 mM	9.2	NT	12.0	10.1	NT	NT	NT	15
	2.60 mM	14.0	NT	15.2	19.8	NT	NT	NT	15
	4.16 mM	16.1	NT	16.9	20.0	NT	NT	NT	15
$[Pr_2(N1A)_6(phen)_2]\cdot 2DMF$	1.04 mM	13.0	NT	12.1	12.0	NT	NT	NT	15
	2.60 mM	15.4	NT	17.2	15.3	NT	NT	NT	15
	4.16 mM	18.2	NT	14.6	14.3	NT	NT	NT	15
$[Yb_2(N1A)_6(phen)_2]$	1.04 mM	10.1	NT	16.1	15.0	NT	NT	NT	15
	2.60 mM	15.1	NT	20.0	21.0	NT	NT	NT	15
	4.16 mM	18.1	NT	20.9	19.2	NT	NT	NT	15
$[Cu_2(N1A)_4(Himi)_4]$	0.01 mg/mL	12.0	NT	NT	13.0	NT	NT	NT	19
	0.05 mg/mL	12.0	NT	NT	15.0	NT	NT	NT	19
	0.10mg/mL	13.0	NT	NT	10.5	NT	NT	NT	19
	0.50 mg/mL	12.0	NT	NT	14.5	NT	NT	NT	19
	1.00 mg/mL	16.0	NT	NT	15.0	NT	NT	NT	19

Abbreviations for bacteria: *BS = Bacillus subtilis; EC = Escherichia coli; KP = Klebsiella pneumoniae; ML = Micrococcus luteus; PA = Pseudomonas aeruginosa; PM = Proteus mirabilis; SA = Staphylococcus aureus*

NA = not active

NT = not tested

Table S3. DPPH-scavenging activity (DPPH%, in %) of naproxen and its reported Cu(II), Co(II), Ni(II) and Mn(III) complexes for 20-min and 60-min incubation. BHT and NDGA were the reference compounds used in the studies. Each experiment was performed at least in triplicate SD < ±10%.

Compound	**Code** [a]	**DPPH%, 20 min**	**DPPH%, 60 min**	**Ref**
Naproxen	HNAP	8.03±0.32	8.43±0.20	2
$[Cu_2(NAP)_4(H_2O)_2]$	Cu1	not given	20.16±0.23	2
$[Cu(NAP)_2(py)_2(H_2O)]$	Cu2	not given	18.66±0.29	2
$[Cu(NAP)_2(phen)]\cdot H_2O$	Cu3	not given	18.76±0.13	2
$[Cu(NAP)_2(bipy)]\cdot H_2O$	Cu4	not given	19.48±0.12	2
$[Co(NAP)_2(CH_3OH)_4]$	Co1	not given	20.37±0.23	2
$[Co(NAP)_2(py)_2(H_2O)_2]$	Co2	not given	18.90±0.22	2
$[Co(NAP)_2(phen)(H_2O)_2]$	Co3	not given	42.42±0.13	2
$[Co(NAP)_2(bipy)(H_2O)_2]$	Co4	not given	26.98±0.41	2
$[Ni(NAP)_2(CH_3OH)_4]$	Ni1	16.47±0.48	16.53±0.41	3
$[Ni(NAP)_2(bipy)(CH_3OH)]$	Ni2	12.51±0.45	13.61±0.23	3
$[Ni(NAP)_2(phen)(H_2O)]$	Ni3	15.67±0.61	14.48±0.34	3
$[Ni(NAP)_2(bipyam)]$	Ni4	8.56±0.81	10.21±0.63	3
$[Ni(NAP)_2(Hpko)_2]$	Ni5	12.28±0.34	13.45±0.46	3
$[Ni(NAP)_2(py)_2(H_2O)_2]$	Ni6	14.51±0.73	15.91±0.45	3
$[Mn(NAP)_2(py)_2(H_2O)_2]$	Mn1	13.58±076	16.76±0.34	1
$[Mn(NAP)_2(phen)(H_2O)]$	Mn2	14.67±0.37	16.06±0.62	1
BHT	BHT	31.30±0.10	60.00±0.38	2
NDGA	NDGA	81.02±0.18	82.60±0.17	2

[a] Abbreviation of the compounds used in Figures 23 and 24.

BHT = butylated hydroxytoluene; bipy = 2,2′-bipyridine; bipyam = 2,2′-bipyridylamine; HNAP = naproxen; Hpko = di(2-pyridyl)ketone oxime; NDGA = nordihydroguairetic acid; phen = 1,10-phenantholine; py = pyridine.

Table S4. Hydroxyl radical scavenging activity (OH%, in %) of naproxen and its reported Cu(II), Co(II), Ni(II) and Mn(III) complexes. Trolox was the reference compound used in the studies. Each experiment was performed at least in triplicate SD < ±10%.

Compound	**Code** [a]	**OH%**	**Ref**
Naproxen	HNAP	89.55±0.44	2
$[Cu_2(NAP)_4(H_2O)_2]$	Cu1	72.84±0.05	2
$[Cu(NAP)_2(py)_2(H_2O)]$	Cu2	93.40±0.22	2
$[Cu(NAP)_2(phen)]\cdot H_2O$	Cu3	93.26±0.36	2
$[Cu(NAP)_2(bipy)]\cdot H_2O$	Cu4	80.11±0.17	2
$[Co(NAP)_2(CH_3OH)_4]$	Co1	96.75±0.30	2
$[Co(NAP)_2(py)_2(H_2O)_2]$	Co2	84.98±0.35	2
$[Co(NAP)_2(phen)(H_2O)_2]$	Co3	92.46±0.22	2
$[Co(NAP)_2(bipy)(H_2O)_2]$	Co4	90.21±0.19	2
$[Ni(NAP)_2(CH_3OH)_4]$	Ni1	96.53±0.32	3
$[Ni(NAP)_2(bipy)(CH_3OH)]$	Ni2	90.65±0.82	3
$[Ni(NAP)_2(phen)(H_2O)]$	Ni3	80.12±0.75	3
$[Ni(NAP)_2(bipyam)]$	Ni4	76.39±0.20	3
$[Ni(NAP)_2(Hpko)_2]$	Ni5	92.69±0.22	3
$[Ni(NAP)_2(py)_2(H_2O)_2]$	Ni6	96.78±0.45	3
$[Mn(NAP)_2(py)_2(H_2O)_2]$	Mn1	98.31±0.67	1
$[Mn(NAP)_2(phen)(H_2O)]$	Mn2	97.42±0.83	1
Trolox		82.80±0.13	2

[a] Abbreviation of the compounds used in Figure 25.

bipy = 2,2′-bipyridine; bipyam = 2,2′-bipyridylamine; HNAP = naproxen; Hpko = di(2-pyridyl)ketone oxime; phen = 1,10-phenantholine; py = pyridine; trolox = 6-hydroxy-2,5,7,8-tetramethylchromane-2-carboxylic acid.

Table S5. ABTS radical scavenging activity (ABTS%, in %) of naproxen and its Cu(II), Co(II), Ni(II) and Mn(III) reported complexes. Trolox was the reference compound used in the studies. Each experiment was performed at least in triplicate SD < ±10%.

Compound	**Code** [a]	**ABTS%**	**Ref**
Naproxen	HNAP	87.51±0.17	2
$[Cu_2(NAP)_4(H_2O)_2]$	Cu1	77.74±0.39	2
$[Cu(NAP)_2(py)_2(H_2O)]$	Cu2	92.12±0.13	2
$[Cu(NAP)_2(phen)]\cdot H_2O$	Cu3	82.39±0.25	2
$[Cu(NAP)_2(bipy)]\cdot H_2O$	Cu4	76.44±0.20	2
$[Co(NAP)_2(CH_3OH)_4]$	Co1	82.46±0.35	2
$[Co(NAP)_2(py)_2(H_2O)_2]$	Co2	90.22±0.28	2
$[Co(NAP)_2(phen)(H_2O)_2]$	Co3	87.32±0.17	2
$[Co(NAP)_2(bipy)(H_2O)_2]$	Co4	84.54±0.29	2
$[Ni(NAP)_2(CH_3OH)_4]$	Ni1	96.03±0.43	3
$[Ni(NAP)_2(bipy)(CH_3OH)]$	Ni2	88.82±0.60	3
$[Ni(NAP)_2(phen)(H_2O)]$	Ni3	85.74±0.21	3
$[Ni(NAP)_2(bipyam)]$	Ni4	84.59±0.92	3
$[Ni(NAP)_2(Hpko)_2]$	Ni5	97.73±0.27	3
$[Ni(NAP)_2(py)_2(H_2O)_2]$	Ni6	87.72±0.54	3
$[Mn(NAP)_2(py)_2(H_2O)_2]$	Mn1	94.78±0.36	1
$[Mn(NAP)_2(phen)(H_2O)]$	Mn2	96.67±0.68	1
Trolox		91.8±0.17	2

[a] Abbreviation of the compounds used in Figure 26.

bipy = 2,2′-bipyridine; bipyam = 2,2′-bipyridylamine; HNAP = naproxen; Hpko = di(2-pyridyl)ketone oxime; phen = 1,10-phenantholine; py = pyridine; trolox = 6-hydroxy-2,5,7,8-tetramethylchromane-2-carboxylic acid.

Table S6. *In vitro* inhibition of soybean lipoxygenase (LOX) activity (IC_{50}, in μM) of naproxen and its reported Ni(II) and Ag(I) complexes. Caffeic acid and cisplatin were the reference compounds used in the studies. Each experiment was performed at least in triplicate SD < ±10%.

Compound	**Code** [a]	**LOX, IC_{50} (μM)**	**Reference**
Naproxen	HNAP	56.61±0.71	3
$[Ni(NAP)_2(CH_3OH)_4]$	Ni1	22.62±0.41	3
$[Ni(NAP)_2(bipy)(CH_3OH)]$	Ni2	48.56±0.08	3
$[Ni(NAP)_2(phen)(H_2O)]$	Ni3	45.77±0.67	3
[Ni(NAP)$_2$(bipyam)]	Ni4	34.63±0.78	3
$[Ni(NAP)_2(Hpko)_2]$	Ni5	34.67±0.28	3
$[Ni(NAP)_2(py)_2(H_2O)_2]$	Ni6	37.22±0.23	3
$[Ag(NAP)(PPh_3)_3](H_2O)$	Ag1	5.1	9
$[Ag(NAP)(tptp)_3](H_2O)$	---	> 30	9
Caffeic acid	CA	600±0.3	3
Cisplatin	cisPt	65.9	9

[a] Abbreviation of the compounds used in Figure 27.

bipy = 2,2′-bipyridine; bipyam = 2,2′-bipyridylamine; HNAP = naproxen; Hpko = di(2-pyridyl)ketone oxime; phen = 1,10-phenantholine; py = pyridine; tptp = tri(p-tolyl)phosphine.

Table S7. DNA-binding constants (K_b) for naproxen and its reported complexes.

Compound	Code [a]	K_b (M^{-1})	Reference
Naproxen	HNAP	$2.67(\pm0.22)\times10^4$	4
$[Cu_2(NAP)_4(H_2O)_2]$	Cu1	$2.27(\pm0.51)\times10^4$	4
$[Cu(NAP)_2(bipy)]$	Cu2	$3.86(\pm0.25)\times10^4$	4
$[Cu(NAP)_2(phen)]$	Cu3	$9.20(\pm0.30)\times10^3$	4
$[Cu(NAP)_2(py)_2(H_2O)]$	Cu4	$8.97(\pm0.50)\times10^3$	4
[Cu(NAP)(L1)Cl]	Cu5	$2.38(\pm0.17)\times10^5$	7
[Cu(NAP)(L2)Cl]	Cu6	$2.24(\pm0.25)\times10^5$	7
[Cu(NAP)(L3)Cl]	Cu7	$4.27(\pm0.19)\times10^5$	7
$[Co(NAP)_2(CH_3OH)_4]$	Co1	$3.15(\pm0.57)\times10^4$	2
$[Co(NAP)_2(py)_2(H_2O)_2]$	Co2	$2.29(\pm0.45)\times10^4$	2
$[Co(NAP)_2(phen)(H_2O)_2]$	Co3	$2.76(\pm0.63)\times10^4$	2
$[Co(NAP)_2(bipy)(H_2O)_2]$	Co4	$3.58(\pm0.07)\times10^4$	2
$[Ni(NAP)_2(CH_3OH)_4]$	Ni1	$1.47(\pm0.05)\times10^5$	3
$[Ni(NAP)_2(bipy)(CH_3OH)]$	Ni2	$5.96(\pm0.10)\times10^5$	3
$[Ni(NAP)_2(phen)(H_2O)]$	Ni3	$1.54(\pm0.12)\times10^5$	3
$[Ni(NAP)_2(bipyam)]$	Ni4	$2.91(\pm0.31)\times10^5$	3
$[Ni(NAP)_2(Hpko)_2]$	Ni5	$8.01(\pm0.27)\times10^5$	3
$[Ni(NAP)_2(py)_2(H_2O)_2]$	Ni6	$6.14(\pm0.10)\times10^5$	3
$[Mn(NAP)_2(CH_3OH)]_n$	Mn1	$2.26(\pm0.08)\times10^5$	11
$[Mn(NAP)_2(phen)(H_2O)]$	Mn2	$6.40(\pm0.17)\times10^6$	1
$[Mn(NAP)_2(py)(H_2O)_2]$	Mn3	$2.29(\pm0.13)\times10^4$	1
$[Mn_6(NAP)(Hsal)(shi)_6(py)_6]$	Mn4	$3.07(\pm0.12)\times10^4$	11
$[(n\text{-}Bu)_2Sn(NAP)_2]$	Sn1	$5.9(\pm0.6)\times10^4$	10
$[Ag(NAP)(PPh_3)_3](H_2O)$	Ag1	$3.28(\pm0.85)\times10^5$	9
$[Ag(NAP)(tptp)_2]$	Ag2	$4.7(\pm1.8)\times10^4$	9
Ethidium bromide	EB	$1.23(\pm0.07)\times10^5$	20

[a] Abbreviation of the compounds used in Figure 28.

bipy = 2,2′-bipyridine; bipyam = 2,2′-bipyridylamine; EB = ethidium bromide; H_2sal = salicylic acid; H_3shi = salicylhydroxamic acid; HNAP = naproxen; Hpko = di(2-pyridyl)ketone oxime; L1 = 4'–(4–tolyl)–2,2':6',2''–terpyridine; L2 = 4'–(furan–2–yl)–2,2':6',2''–terpyridine; L3 = 4′–(pyridin–3–yl)–2,2′:6′,2′′–terpyridine; *n*–Bu = *n*–butyl; phen = 1,10-phenantholine; PPh_3 = triphenylphosphine; py = pyridine; tptp = tri(p–tolyl)phosphine.

Table S8. BSA-quenching (k_q) and binding constants (K) for naproxen and its reported complexes.

Compound	**Code** [a]	$k_{q(BSA)}$ **(M^{-1} s^{-1})**	$K_{(BSA)}$ **(M^{-1})**	**Ref**
Naproxen	HNAP	$1.18(\pm0.06)\times10^{12}$	5.35×10^{3}	4
$[Cu_2(NAP)_4(H_2O)_2]$	Cu1	$2.34(\pm0.15)\times10^{12}$	6.61×10^{4}	4
$[Cu(NAP)_2(bipy)]$	Cu2	$2.24(\pm0.14)\times10^{12}$	1.20×10^{4}	4
$[Cu(NAP)_2(phen)]$	Cu3	$2.94(\pm0.09)\times10^{12}$	1.90×10^{4}	4
$[Cu(NAP)_2(py)_2(H_2O)]$	Cu4	$2.33(\pm0.14)\times10^{12}$	2.55×10^{4}	4
$[Co(NAP)_2(CH_3OH)_4]$	Co1	$2.47(\pm0.16)\times10^{12}$	1.25×10^{5}	2
$[Co(NAP)_2(py)_2(H_2O)_2]$	Co2	$1.21(\pm0.04)\times10^{12}$	2.64×10^{4}	2
$[Co(NAP)_2(phen)(H_2O)_2]$	Co3	$2.09(\pm0.15)\times10^{12}$	1.07×10^{5}	2
$[Co(NAP)_2(bipy)(H_2O)_2]$	Co4	$1.75(\pm0.09)\times10^{12}$	3.06×10^{4}	2
$[Ni(NAP)_2(CH_3OH)_4]$	Ni1	$2.46(\pm0.12)\times10^{12}$	$4.51(\pm0.34)\times10^{4}$	3
$[Ni(NAP)_2(bipy)(CH_3OH)]$	Ni2	$2.42(\pm0.24)\times10^{12}$	$3.25(\pm0.31)\times10^{5}$	3
$[Ni(NAP)_2(phen)(H_2O)]$	Ni3	$5.90(\pm0.32)\times10^{12}$	$4.18(\pm0.34)\times10^{5}$	3
$[Ni(NAP)_2(bipyam)]$	Ni4	$8.28(\pm0.22)\times10^{12}$	$4.59(\pm0.35)\times10^{4}$	3
$[Ni(NAP)_2(Hpko)_2]$	Ni5	$4.50(\pm0.28)\times10^{12}$	$1.08(\pm0.07)\times10^{5}$	3
$[Ni(NAP)_2(py)_2(H_2O)_2]$	Ni6	$9.52(\pm0.43)\times10^{11}$	$7.44(\pm0.55)\times10^{3}$	3
$[Mn(NAP)_2(py)_2(H_2O)_2]$	Mn1	$1.35(\pm0.10)\times10^{12}$	$9.99(\pm0.45)\times10^{5}$	1
$[Mn(NAP)_2(phen)(H_2O)]$	Mn2	$2.39(\pm0.07)\times10^{12}$	$1.61(\pm0.25)\times10^{4}$	1
$[Mn(NAP)_2(CH_3OH)]_n$	Mn3	$2.05(\pm0.05)\times10^{12}$	$3.51(\pm0.12)\times10^{4}$	11
$[Mn_6(NAP)(Hsal)(shi)_6(py)_6]$	Mn4	$1.06(\pm0.03)\times10^{12}$	$1.03(\pm0.04)\times10^{5}$	11
$[Nd_2(N1A)_6(phen)_2]$	-	not reported	$2.41\times10^{4} – 3.03\times10^{4}$	16

[a] Abbreviation of the compounds used in Figures 29 and 30.

Table S9. HSA-quenching (k_q) and binding constants (K) for naproxen and its reported complexes.

Compound	**Code** [a]	$k_{q(HSA)}$ **(M^{-1} s^{-1})**	$K_{(HSA)}$ **(M^{-1})**	**Ref**
Naproxen	HNAP	$1.24(\pm0.09)\times10^{12}$	3.27×10^{4}	4
$[Cu_2(NAP)_4(H_2O)_2]$	Cu1	$4.73(\pm0.37)\times10^{12}$	7.83×10^{4}	4
$[Cu(NAP)_2(bipy)]$	Cu2	$4.70\ (\pm0.17)\times10^{12}$	3.20×10^{4}	4
$[Cu(NAP)_2(phen)]$	Cu3	$4.02(\pm0.21)\times10^{12}$	7.69×10^{4}	4
$[Cu(NAP)_2(py)_2(H_2O)]$	Cu4	$4.56(\pm0.27)\times10^{12}$	9.55×10^{3}	4
$[Co(NAP)_2(CH_3OH)_4]$	Co1	$2.42(\pm0.10)\times10^{12}$	3.20×10^{4}	2
$[Co(NAP)_2(py)_2(H_2O)_2]$	Co2	$1.60(\pm0.07)\times10^{12}$	2.69×10^{4}	2
$[Co(NAP)_2(phen)(H_2O)_2]$	Co3	$4.23(\pm0.27)\times10^{12}$	1.58×10^{4}	2
$[Co(NAP)_2(bipy)(H_2O)_2]$	Co4	$6.28(\pm0.36)\times10^{12}$	2.19×10^{4}	2
$[Ni(NAP)_2(CH_3OH)_4]$	Ni1	$6.57(\pm0.37)\times10^{12}$	$1.35(\pm0.11)\times10^{4}$	3
$[Ni(NAP)_2(bipy)(CH_3OH)]$	Ni2	$2.37(\pm0.29)\times10^{12}$	$1.93(\pm0.03)\times10^{5}$	3
$[Ni(NAP)_2(phen)(H_2O)]$	Ni3	$1.13(\pm0.06)\times10^{13}$	$2.73(\pm0.25)\times10^{4}$	3
$[Ni(NAP)_2(bipyam)]$	Ni4	$1.59(\pm0.05)\times10^{13}$	$1.88(\pm0.26)\times10^{5}$	3
$[Ni(NAP)_2(Hpko)_2]$	Ni5	$4.71(\pm0.13)\times10^{12}$	$3.02(\pm0.41)\times10^{4}$	3
$[Ni(NAP)_2(py)_2(H_2O)_2]$	Ni6	$1.61(\pm0.08)\times10^{13}$	$4.05(\pm0.23)\times10^{4}$	3
$[Mn(NAP)_2(py)_2(H_2O)_2]$	Mn1	$2.25(\pm0.12)\times10^{12}$	$6.50(\pm0.30)\times10^{4}$	1
$[Mn(NAP)_2(phen)(H_2O)]$	Mn2	$9.06(\pm0.26)\times10^{12}$	$3.30(\pm0.28)\times10^{5}$	1

[a] Abbreviation of the compounds used in Figures 29 and 30.

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